

NASA TECH BRIEF



NASA Tech Briefs are issued to summarize specific innovations derived from the U. S. space program and to encourage their commercial application. Copies are available to the public from the Clearinghouse for Federal Scientific and Technical Information, Springfield, Virginia 22151.

Thermoplastic Rubberlike Material Produced at Low Cost

The problem:

To formulate a thermoplastic rubberlike material that can be produced from commercially available ingredients at low cost.

The solution:

A material prepared by blending a copolymer of ethylene and vinyl acetate with asphalt and a petroleum distillate.

How it's done:

The copolymer, containing 23.8 percent by weight of vinyl acetate, is blended with steam-refined asphalt (ductility above 150 cm at 77°F) and unrefined petroleum distillate (0.95 specific gravity) or kerosene (0.79 specific gravity) at 350°F. A typical composition is produced by blending 2.7 pounds of the copolymer, with 0.9 pound of asphalt, and 1.5 pounds of the unrefined petroleum distillate. The cooled blend is a thermoplastic material having good tensile strength and resilience in the temperature range of -50° to +150°F. At temperatures below -50°F, the material becomes very hard but not brittle.

The material has a glass-transition temperature of less than -60°F, and a softening point above 150°F.

None of the blended ingredients are exuded at any temperature within the useful temperature range of the material.

Notes:

1. The new material can be easily molded or extruded and is compatible with a variety of fillers.
2. This low cost material would be useful for lining concrete water tanks and swimming pools, and as a crack sealant in asphalt and concrete roads, especially where low temperature is a problem.
3. Inquiries concerning this invention may be directed to:

Technology Utilization Officer
Jet Propulsion Laboratory
4800 Oak Grove Drive
Pasadena, California 91103
Reference: B66-10453

Patent status:

Inquiries about obtaining rights for the commercial use of this invention may be made to NASA, Code GP, Washington, D.C. 20546.

Source: Frank J. Hendel
(JPL-793)

Category 03